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10. **Brief Description of Invention**

This invention consists of a system of manifolds and valves coupled to a porous platen in such a way that a vacuum applied to a manifold on one side of the valves will be automatically sealed or cut-off by these valves except in those areas where a relatively non-porous material has been placed on the opposite side of the platen. In that case, the covered valves automatically open and allow the vacuum to be applied to the substance placed on the platen. By this means a vacuum platen of relatively large area can be automatically masked so that it will effectively exert the system's full capacity on flat materials placed on the platen even though a relatively small portion of the platen is covered by the material.

This automatic masking is accomplished in the following manner:

(1) The platen is honey-combed with individual identical cells.

(2) In the accompanying drawing these cells are joined at the bottom to a manifold, A, to which a vacuum pump is attached.

(3) Each cell consists of an automatic control or governor valve (in the drawing illustrated by a flat spring or reed valve, B) pierced by a small by-pass port, b, and leading into individual small manifolds, C.

(4) These manifolds are covered by a flat porous platen, D. (Closely spaced, small holes would also be satisfactory.) The porosity of the platen is such that it will support relatively flimsy material without deformation. Yet, when uncovered, it will allow adequate flow of air causing the control valve to close, and thus reducing the flow to that allowed by the by-pass port.

(5) In the instance that a relatively non-porous substance, E, is placed on the platen, the flow of air is restricted and the leakage of the by-pass port allows the pressure in the upper and lower manifolds to equalize.

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This will, in turn, cause the control valve to open, thereby allowing a greatly increased flow to pull and hold the substance down on the platen.

This automatically masked vacuum platen should have extensive application in a number of situations whenever it is necessary to hold flat-sided objects in place with forces not exceeding that of atmospheric pressure. Also, the objects may vary in size and shape with respect to the platen on which they are held in place. Some examples of these applications are:

(1) photographic cameras, enlargers, copy boards, printers, etc.

(2) Coordinatographs, automatic point and line plotters, stereo plotters, drafting boards.

(3) Model shops for holding work on shaping tables, drill presses, etc.

(4) Optical shops for handling glass prisms and plates, etc.

14. This invention was conceived in the course of official duties. An assignment had been given [redacted] STAT to define objectives for the development of a vacuum easel needed for photo-enlargers. STAT [redacted] to initiate and monitor this development through a contract with industry.

In the course of this development contract [redacted] STAT discussed STAT [redacted] the problem of holding down miscellaneous sizes of double-weight print paper. In the course of this discussion the idea for the Automatically-Masked Vacuum Platen was conceived. Subsequent component research and discussion refined the idea into the invention described herein.

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